If it is true that petroleum is an addiction, then alternative energy just might be the cure. Dr. Abolghasem Shahbazi’s research is examining biofuel and chemicals which can be derived from agricultural byproducts, such as cheese whey, corn stover, wheat straw, etc. He also is researching new technologies which can efficiently produce plastics and fuels from products other than petroleum. Some of his current projects include:

- Isolating lactic acid from cheese whey for production of biodegradable polymers.
- Surveying the energy potential in crop residues.
- Converting crop residues, including corn stover, into bioethanol.
- Designing a small scale methane gas generator.
- Evaluating environmental and economic impact of biofuels.
- Demonstrating small-scale biodiesel production for on-farm use.

For more information about Dr. Shahbazi’s research, email him at ash@ncat.edu
Money does indeed grow on trees for increasing numbers of small-scale farmers who are learning to grow exotic mushrooms from Dr. Omon Isikhuemhen’s research and Extension project. Funded by North Carolina’s GoldenLeaf Foundation, the project is part of a statewide effort to help limited resource farmers make the transition from tobacco to alternative crops. Some of the current achievements of the program include:

- Characterizing, optimizing and collecting exotic mushroom species.
- Training and support for small-scale, limited resource farmers in shiitake cultivation.
- Developing new technologies and markets to support the industry.
- Producing and providing quality spawn.
- Researching applications for exotic mushrooms, including nutraceuticals, alternatives to antibiotics, and toxic waste bioremediation.
- Demonstrating indoor growing for year-round, high yield production of new varieties of exotic mushrooms.

For more information about Dr. Isikhuemhen’s work, contact him at omon@ncat.edu or log on to http://www.ag.ncat.edu/omon/index.html
Dr. Mohamed Ahmedna’s focus on value-added research has led to the
discovery of many new uses for peanuts. He also is developing new processes
to improve the safety and economic viability of the peanut industry in the
United States and abroad. With funding from the United State Agency for
International Development (USAID), Ahmedna has been collaborating with
researchers in the West African nation of Senegal, where peanuts are an
important crop. Peanuts are also important to North Carolina, which boasts
the nation’s fifth largest peanut crop, worth $70 million a year. Dr. Ahmedna
was the recipient of the 2005 USAID George Washington Carver Agricultural
Excellence Award in recognition of his peanut research, which is helping to
improve the lives of people in West Africa. His peanut research program is
adding value to this crop in the following ways:

• Developing low-fat, high protein meat substitutes from defatted peanut flour.
• Isolating, identifying and characterizing antioxidants from red peanut skins,
  for use in nutraceuticals and functional foods.
• Developing high protein, low-cost infant formula for developing nations.
• Reducing the allergenicity of peanuts.
• Isolating protein from defatted peanut flour for use in protein-fortified foods
  and dietary supplements.
• Introducing simple, low-cost processes for detoxifying aflatoxins in peanuts
  and peanut products.

For more information about Dr. Ahmedna’s work with peanuts and other
value-added products, contact him at ahmedna@ncat.edu

School of Agriculture and Environmental Sciences
www.ag.ncat.edu

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Food microbiologist Salam Ibrahim is making advancements in food safety, biotechnology and bioengineering. His lab is discovering many of the properties of plants and microbes that could be harnessed to make food safer and more nutritious. Some of his recent research includes:

- Patented natural treatment to inhibit the growth of E. coli O157:H7 in ground beef.
- New techniques to improve food safety by increasing sensitivity of pathogens to heat.
- Antimicrobial compounds produced by lactic acid bacteria and bifidobacteria.
- Use of herbs to control the growth of foodborne pathogens.
- Rapid methods for the detection and characterization of new probiotics.
- New techniques to enhance the quality of probiotic dietary supplements.
- New processes to improve the stability of probiotics (bifidobacteria and lactobacillus) in commercial products.
- New methods to immobilize biological materials for the production of food grade products such as organic acids, antimicrobial compounds, amino acids and vitamins (patent pending).

For more information about Dr. Ibrahim’s research, contact him at ibrah001@ncat.edu